A STUDY OF HEART RATE VARIABILITY AND SERUM ADIPONECTIN IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

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Background:

Polycystic ovary syndrome is a common heterogenous endocrine disorder in women of reproductive age (5-10%) . Characterised by chronic anovulation, hyperandrogenism and insulin resistance. Obesity is observed in more than 50% of the patients. Cardiovascular disease & type 2 diabetes mellitus are considered as long term health risks in women with PCOS. Adiponectin playing an important role in the pathogenesis of PCOS and obesity is an adipocytokine the levels of which is reduced in PCOS , reduction in adiponectin is associated with increased cardiovascular risk. Heart rate variability is a non invasive test to assess the cardiac autonomic dysfunction in women with PCOS. Estimation of adiponectin and Heart rate variability test could help us to identify women who are at increased risk of developing cardiovascular complications.

Aim and objectives:

- To assess the Heart rate variability in women with polycystic ovarian syndrome and compare it with controls
- To estimate the serum adiponectin levels in women with PCOS and compare it with controls
- To correlate the serum adiponectin levels with HRV indices, BMI and Waist hip ratio.

Methods and Methodology:

A sample size of 90 women of age group 15-39 years were recruited for this study. Of which, based on the BMI and the clinical diagnosis of PCOS, the study group was divided into three groups. Women who were diagnosed as PCOS with BMI>25 as Group I (n=30); Women who were diagnosed as PCOS with BMI<25 as Group II (n=30); and age-sex matched clinically normal healthy women with BMI<25 as Group III (controls, n=30). Serum Adiponectin was estimated and Resting Heart rate variability was recorded for the study group.

Results:

Obese women with PCOS showed autonomic imbalance with increased LF/HF ratio and serum adiponectin was decreased significantly than non obese women and controls ($P<0.001$). In non obese women with PCOS serum adiponectin was decreased significantly ($p<0.001$) and there was a reduced vagal drive (reduction in HF nu, SDNN) when compared to that of controls.

Conclusion:

Obese women with PCOS showed a significant increase in LF/HF ratio a marker of sympathovagal imbalance when compared to that of non obese women and controls. In non obese women there was a reduction in serum adiponectin level and reduced vagal drive when compared to that of controls predisposing them to autonomic imbalance. Women with PCOS showed features of autonomic dysfuntion with sympathetic predominance and parasympathetic withdrawal, and their serum adiponectin level was decreased and correlated negatively with BMI and WHR, LF nu and LF/HF ratio. Sympathovagal balance favouring relative sympathetic activation was associated with low serum concentrations of adiponectin in PCOS patients.

Keywords:

PCOS, Heart rate variability, autonomic dysfunction, serum adiponectin levels.